

REMARKS

The allowance of claims 13-20 has been noted with appreciation.

Claims 1-12 are drawn to the final thermistor product and as explained on page 4 of the application, copper exists in the vicinity of the internal electrodes. Although not necessary to distinguish the invention from the prior art considered below, claim 1 has been amended to provide increased clarity. Also, it is believed that the amount of copper in the internal electrodes is better expressed in terms of atomic percent (as shown in Table 4 on page 14), and therefore claims 3, 4 and 8 have been appropriately revised to so state.

The rejection of claims 1 and 8-12 under 35 USC § 103 over Nakayama in view of Yoshii and the rejection of claims 2-7 under 35 USC § 103 over Nakayama in view of Yoshii and JP '6309 are respectfully traversed.

The claims under rejection broadly call for a NTC thermistor in which the internal electrodes contain a metal component other than Cu as a main component and at least one of Cu and a Cu compound as a sub-component.

The Nakayama reference broadly shows an NTC thermistor which contains a pair of spaced internal electrodes made of a conductive material, of which platinum is exemplified. As the Office Action acknowledges, there is no teaching with regard to the use of copper in the internal electrode materials. To overcome this deficiency,, the Office Action relies on Yoshii in light of the statement of Nakayama that known electrode materials can be used. It is respectfully submitted that this reliance is misplaced.

Yoshii discloses a multilayer device, principally capacitors, containing internal electrodes 8, 10 made of a base metal, preferably copper, nickel or their alloys and a three layer external electrode, in which one of the external electrode layers is mainly copper and the second and third layers can contain copper in a minor amount. However, there is no teaching or suggestion of using copper as a subcomponent in internal electrodes composed of another metal component as a main component. Yoshii provides no reason why copper should be a minor component in an internal electrode nor is any reason apparent. This reference is concerned with oxidation and microcrack problems which occur in the external electrodes (see column 1, lines 32-45) and is not concerned with the internal electrodes beyond the fact they exist. Therefore, even if the internal electrodes of Yoshii were substituted for the internal electrodes of Nakayama, the claimed NTC thermistor would not be realized.

As to claims 2-7, the Office Action cites the Japanese patent solely for the purpose of showing an external electrode containing copper. However, that is also shown in Yoshii and therefore, it is not seen that this additional reference adds any additional teaching to the principal combination of references. In any event, the Japanese reference does not teach or suggest using copper as a subcomponent in internal electrodes composed of another metal component as a main component, which is the same deficiency in the combination of Nakayama and Yoshii.

For the reasons reviewed above, it is respectfully submitted that neither the 2 reference combination or the 3 reference combination renders claims 1-12 obvious, and withdrawal of the rejections is respectfully requested.

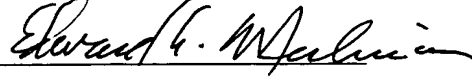
Application No.: 10/622,552

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In view of the foregoing, it is believed that the pending application is in condition for allowance and the early issuance of a Notice of Allowance is respectfully solicited.

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Respectfully submitted,

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